REMARKS

Upon entry of this amendment, claims 1-10 are pending in the application. Claim 1 is an independent claim drawn to a method for cooling a seal located in a wall of a chamber, with claims 2-5 depending therefrom, while claim 6 is an independent claim drawn to an apparatus for cooling a seal, with claims 7-10 depending therefrom. Applicants submit that the amendments to the claims do not add new matter within the meaning of 35 U.S.C. §132.

Claims 1-10 stand rejected as being anticipated by Zimron et al. The claim amendments have been made in order to better define what Applicants consider to be the inventive subject matter. The amendments and following remarks are made in order to place the application in condition of allowance.

Rejection of Claims 1-10 Under 35 U.S.C. 102(b)

Claims 1-10 stand rejected under 35 U.S.C. 102(b) as being anticipated by Zimron et al. (U.S. Patent No. 5,743,094) for the reasons set forth in the Office Action.

RESPONSE

Applicant respectfully traverses this rejection and respectfully requests reconsideration and withdrawal thereof.

To establish an anticipation rejection, every claimed element must be found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); *See also*, MPEP § 2131. Applicant respectfully submits that the Examiner has not met this burden.

Claim 1 is drawn to A method for cooling a seal located in a wall of a seal chamber and through which a movable shaft passes, with the seal being heated by hot pressurized vapor that leaks through a labyrinth into the seal chamber and internal friction. The method comprises the steps of: (a) providing a seal chamber in which the seal is located and into which the hot pressurized vapor leaks; (b) injecting cool liquid into the seal chamber in which the seal is located; (c) cooling and condensing the hot pressurized vapor in the seal chamber thus cooling the seal and reducing the pressure in the seal chamber and producing condensate; (d) supplying the condensate from the seal chamber to a seal chamber condensate drainage vessel for collecting only the condensate produced in the seal chamber; and (e) supplying the collected condensate from the seal chamber condensate drainage vessel to an exit of a condenser.

Likewise, claim 6 is drawn to an aApparatus for cooling a seal located in a wall of a seal chamber and through which a movable

shaft passes, the seal being heated by hot pressurized vapor that leaks through the seal into the seal chamber and internal friction. The apparatus comprises: (a) a seal chamber in which the seal is located and into which leaks the hot pressurized vapor; (b) means for injecting liquid into the seal chamber in which the seal is located such that the hot pressurized vapor is cooled and condenses in the seal chamber, thus cooling the seal and producing condensate; (c) a line that supplies the condensate from said seal chamber to a seal chamber condensate drainage vessel for collecting only the condensate produced in the seal chamber; and (d) a pump that supplies the collected condensate from the seal chamber condensate drainage vessel to an exit of a condenser.

The remaining claims depend from either claim 1 or claim 6 and, therefore, contain all of the limitations found in the independent claims. Therefore, if claims 1 and 6 are not anticipated by Zimron et al., then the remaining claims are not anticipated either.

Thus, in order for Zimron et al. to anticipate claims 1 and 6 (and the claims that depend therefrom), Zimron et al. must disclose all of the limitations set forth above. In particular, Zimron et al. must disclose a seal chamber in which the seal is located and into which leaks the hot pressurized vapor, means for injecting liquid into the seal chamber in which the seal is located such that

the hot pressurized vapor is cooled and condenses in the seal chamber, thus cooling the seal and producing condensate, a line that supplies the condensate from the seal chamber to a **seal chamber condensate drainage vessel** for collecting **only** the condensate produced in the seal chamber, and a pump that supplies the collected condensate from the **seal chamber condensate drainage vessel to an exit** of a condenser. Applicants respectfully submit that Zimron et al. fail to do so, and therefore do not anticipate the claims.

Zimron et al. disclose a method of and apparatus for cooling a seal for machinery. The apparatus contains a seal heated by hot pressurized vapor and cooled by providing a chamber in which the seal is located and for containing vapor that leaks thereinto. The pressure in the chamber is reduced by connecting it to a source of low pressure; and liquid is supplied to the chamber at a pressure above the reduced pressure of the chamber and at a temperature below the temperature of vapor leaking into the chamber. The liquid is introduced into the chamber as droplets for contacting vapor that leaks thereinto, thereby cooling the vapor and thus cooling the seal. The flow rate of the liquid is adjustable in accordance with the temperature of the liquid in the chamber.

In particular, Zimron et al. disclose (col. 4, lines 21-42) that:

> [c]hamber 32 is connected by connection 50 to a source of low pressure, and particularly, to the condenser of the power plant with which turbine 14A is associated. This chamber is also connected via connection 52 to the output of the cycle pump as shown in FIG. 1. **Pressurized condensate at the temperature substantially of the condenser is supplied via connection 52 to spray head nozzles 54 that open to the interior of chamber 32, and relatively cold liquid working fluid is sprayed onto cylindrical shield 56 further converting the liquid into fine droplets that form a mist inside chamber 32. This mist interacts with hot vapor leakage B thereby cooling this hot vapor by means of direct contact heat transfer of heat in the vapor to liquid contained in the droplets and partial evaporation of the liquid in the droplets and thus forming a mixture of working fluid that flows into sump 32' from which the mixture is vented and drained by connection 50 into the condenser**. As a result, the temperature of mechanical seal 46 can be maintained at a desired temperature by regulating the amount of liquid supplied to connection 52. Shield 56 shields mechanical seal 46 from direct contact with cool liquid from the condenser and thus protects the seal against thermal shock. (Emphasis added).

As can be seen, Zimron et al. disclose that the mixture is **vented and drained by connection 50 into the condenser**, where condensation takes place. Thus, Applicants respectfully submit that Zimron et al. fail to disclose **a seal chamber condensate drainage vessel**, a line that supplies the condensate from the seal chamber to the **seal chamber condensate drainage vessel** for collecting **only** the condensate produced in the seal chamber, and a pump that supplies the collected condensate from the **seal chamber condensate drainage vessel to an exit** of a condenser. Since Zimron et al. fail to disclose these important limiations, Zimron et al.

fail to teach each of the claimed limitations, and therefore do not anticipate the claims

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-10 as being anticipated by Zimron et al.

CONCLUSION

In view of the foregoing, applicants respectfully request the Examiner to reconsider and withdraw the all pending rejections, and to allow all of the claims pending in this application.

If the Examiner has any questions or comments regarding this matter, he is welcomed to contact the undersigned attorney at the below-listed number and address.

Respectfully submitted,
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